

(19)



JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: **05075258 A**(43) Date of publication of application: **26 . 03 . 93**

(51) Int. Cl

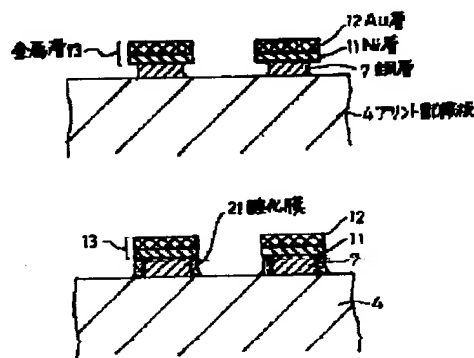
H05K 3/46**H05K 3/06****H05K 3/24****H05K 3/28**(21) Application number: **03231267**(22) Date of filing: **11 . 09 . 91**(71) Applicant: **FUJITSU LTD**(72) Inventor: **FUKUDA HIROKAZU
MORITA YASUHIRO**(54) **MANUFACTURE OF PRINTED WIRING BOARD**

(57) Abstract:

PURPOSE: To provide manufacture of printed wiring board, in which the properties of the gold plated layer of a printed wiring board with the gold-plated copper pattern layer are not changed.

CONSTITUTION: In the manufacture of a printed wiring board, in which resist films having a specified pattern are formed onto the copper layers 7 of the printed wiring board 4, a surface of which has the copper layers 7 and which is laminated in multilayers, metallic layers 13 are formed onto the wiring board while using the resist films as masks, and the copper layers except the copper layers of the lower sections of the metallic layers 13 are removed through etching in a specified pattern employing the metallic layers 13 as masks, the copper layers 7 are etched in the specified pattern, the printed wiring board 4 is dipped in a treatment liquid, and a process, in which the side faces of the copper layers 7 formed through etching in the predetermined pattern are oxidized, is given.

COPYRIGHT: (C)1993,JPO&Japio

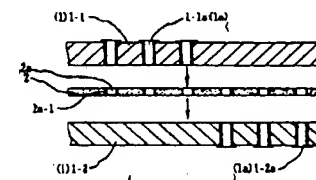


(54) MANUFACTURE OF MULTILAYER PRINTED WIRING BOARD

(11) 5-75257 (A) (43) 26.3.1993 (19) JP
 (21) Appl. No. 3-230688 (22) 11.9.1991
 (71) FUJITSU LTD (72) MAMORU SHIRAI(3)
 (51) Int. Cl⁵. H05K3/46

PURPOSE: To prevent the intrusion of a resin obtained by melting a prepreg into a previously bored and plated through-hole when the prepreg is held between printed wiring boards and heated and contact-bonded and the wiring boards are laminated regarding the manufacture of the multilayer printed wiring board with the hollow non-through through-hole.

CONSTITUTION: Hollow plated through-holes 1a penetrated thigh at least one side of a plurality of printed wiring boards 1 laminated are formed previously, holes 2a corresponding to the plated through-holes 1a are bored to a prepreg 2 held between the printed wiring boards 1 laminated, a resin on the inner surfaces and peripheries of the holes is thermo-set beforehand and thermo-set resin sections 2a-1 are formed, and the prepreg 2 is held between the printed wiring boards 1 laminated and heated and contact-bonded and the wiring boards 1 are laminated in multilayers.



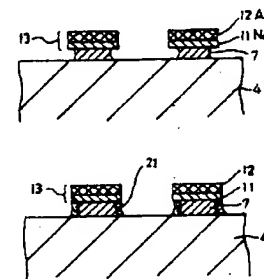
1-1a(1a), 1-2a(1a): copper-plated through-hole (plated through-hole)

(54) MANUFACTURE OF PRINTED WIRING BOARD

(11) 5-75258 (A) (43) 26.3.1993 (19) JP
 (21) Appl. No. 3-231267 (22) 11.9.1991
 (71) FUJITSU LTD (72) HIROKAZU FUKUDA(1)
 (51) Int. Cl⁵. H05K3/46, H05K3/06, H05K3/24, H05K3/28

PURPOSE: To provide manufacture of printed wiring board, in which the properties of the gold plated layer of a printed wiring board with the gold-plated copper pattern layer are not changed.

CONSTITUTION: In the manufacture of a printed wiring board, in which resist films having a specified pattern are formed onto the copper layers 7 of the printed wiring board 4, a surface of which has the copper layers 7 and which is laminated in multilayers, metallic layers 13 are formed onto the wiring board while using the resist films as masks, and the copper layers except the copper layers of the lower sections of the metallic layers 13 are removed through etching in a specified pattern employing the metallic layers 13 as masks, the copper layers 7 are etched in the specified pattern, the printed wiring board 4 is dipped in a treatment liquid, and a process, in which the side faces of the copper layers 7 formed through etching in the predetermined pattern are oxidized, is given.



11: Ni layer, 12: Au layer, 21: oxide film

(54) MANUFACTURE OF PRINTED WIRING BOARD

(11) 5-75259 (A) (43) 26.3.1993 (19) JP
 (21) Appl. No. 3-231269 (22) 11.9.1991
 (71) FUJITSU LTD (72) HIROBUMI KAJIWARA
 (51) Int. Cl⁵. H05K3/46//H05K3/42

PURPOSE: To provide the manufacture of a printed wiring board, in which an internal layer conductor exposed in a through-hole is connected positively.

CONSTITUTION: An intermediate-layer base material 2, to which an internal layer conductor 1 is formed, copper foils 4A, 4B and a prepreg are laminated so that one end section of the intermediate-layer base material 2 is protruded from one end section of the prepreg and a laminated board 5 is prepared, a through-hole 6 is bored to the laminated board 5, the internal layer conductor 1 of the intermediate-layer base material 2 and the copper foils 4A, 4B on both sides are electrically conducted mutually, and the multilayer board 5 and an electrode plate are faced oppositely and dipped in an electrolytic copper plating solution. Electrolytic copper plated layers 8 are formed on the internal layer conductor 1 exposed to the inwall surface of the through-hole 6 and the copper foils 4A, 4B on both sides, and the multilayer board 5 is dipped in an electroless copper plating solution and electroless copper plated layers 7 are shaped on the whole inwall surface of the through-hole 6 and the copper foils 4A, 4B on the surface and the rear. The board is dipped in the electrolytic copper plating solution again, and the plated layers 8 are formed through an electrolytic plating method.

